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EXAMINER

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3721

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/621,031

Filing Date: July 14, 2003

Appellant(s): PYLANT ET AL.

Isabelle R. McAdreus
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 08/29/2005 appealing from the Office action mailed 05/26/2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6,119,865	Kawada	09-2000
US 5,238,876	Takeuchi et al.	08-1993

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawada (US 6,119,865) in view of Takeuchi et al. (5,238,876).

- With respect to Claims 1-18, Kawada discloses a method of storing a plurality of wafer assemblies including the steps of: placing a wafer (4) on an adhesive sheet (3), adhering the adhesive sheet (3) to a frame (2) to form a wafer assembly (1) (col. 2, lines 17-30), sequentially placing and aligning each of a plurality of wafer assemblies (1) into a container (15) along orientation artifacts (16) disposed inside of the container (15) in order to form a stack of wafer assemblies, and covering the container with a cover (17). The method of Kawada meets all of applicant's claimed subject matter but lacks the specific teaching of the wafer frame having at least one alignment artifact disposed thereon for aligning with the orientation artifacts disposed inside the container in order to prevent substantial rotational movement of the wafer assembly within the container.

However, it is known in the art that a wafer frame is not always in a perfect circular shape as disclosed in the exemplary embodiment of Kawada. For example, Takeuchi discloses a wafer assembly including a ring frame (11), a wafer (1), a tape (10) for holding the wafer (1) to the frame (11); wherein the ring frame (11) has alignment artifacts (straight edges) along the perimeter for mounting onto a chuck (12) in a dicing process such that the alignment artifacts prevent the wafer from rotational movement while the wafer being divided.

Therefore, it would have been obvious to an ordinary skilled person in the art, at the time the invention was made, to have modified the method of Kawada by having replaced the circular wafer frame with one having alignment artifacts, such as one disclosed by Takeuchi, since wafer frame with such alignment artifacts are known for providing alignment in wafer and IC chips manufacturing processes.

Note that care must be taken when handling wafer assemblies because the orientation of the wafer assemblies must be known at all times during processing and/or storage; therefore, the wafer assemblies of Takeuchi should have the same orientation when being placed into the container of Kawada, and the orientation of the wafer assemblies of Takeuchi can be recognized by the notches on one of the sides of the wafer frame as depicted in FIG. 2A of the Takeuchi reference. Thus, placing the wafer assemblies such that visualization of such orientation marks when the container is uncovered would have been an obvious matter to the skilled person in the art. Moreover, the alignment artifacts (straight edges) of the wafer frame of Takeuchi would align with the orientation artifacts (16) of the container (15) of Kawada and would prevent substantial rotational movement of the wafer assembly within the container.

- With respect to Claims 19 and 22, Kawada discloses a method of storing a plurality of wafer elements including the steps of: providing a plurality of wafer element (1) comprising a wafer (4), an adhesive sheet (3) and a frame (2); placing and aligning each of a plurality of wafer elements (1) into a container (15) along orientation artifacts (16) disposed inside of the container (15) in order to form a stack of wafer

assemblies. The method of Kawada meets all of applicant's claimed subject matter but lacks the specific teaching of the wafer element having at least one alignment artifact disposed thereon for engaging and aligning with the orientation artifacts disposed inside the container.

However, it is known in the art that a wafer frame is not always in a perfect circular shape as disclosed in the exemplary embodiment of Kawada. For example, Takeuchi discloses a wafer element including a ring frame (11), a wafer (1), a tape (10) for holding the wafer (1) to the frame (11); wherein the ring frame (11) has alignment artifacts (straight edges) along the perimeter for mounting onto a chuck (12) in a dicing process such that the alignment artifacts prevent the wafer from rotational movement while the wafer being divided.

Therefore, it would have been obvious to an ordinary skilled person in the art, at the time the invention was made, to have modified the method of Kawada by having replaced the circular wafer frame with one having alignment artifacts, such as one disclosed by Takeuchi, since wafer frame with such alignment artifacts are known for providing alignment in wafer and IC chips manufacturing processes.

- With respect to Claims 20 and 21, note that care must be taken when handling wafer elements because the orientation of the wafer elements must be known at all times during processing and/or storage; therefore, the wafer elements of Takeuchi should have the same orientation when being placed into the container of Kawada, and the orientation of the wafer elements of Takeuchi can be recognized by the notches on one of the sides of the wafer frame as depicted in FIG. 2A of the Takeuchi reference.

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Thus, placing the wafer elements such that visualization of such orientation marks when the container is uncovered would have been an obvious matter to the skilled person in the art.

(10) Response to Argument

Appellants' arguments filed 08/29/2005 have been fully considered but they are not persuasive for the reasons below:

- Appellants contend that the slots (16) in the Kawada's container (15) (FIG. 6 in US 6,119,865) lack the contour that would permit engagement with a wafer element as recited in claim 15. This limitation is not in claim 15. However, in response to appellants' argument, these slots (16) would permit engagement with a wafer frame of a wafer assembly such as the wafer assembly shown in FIG. 2A of the Takeuchi reference (US 5,238,876). Since the wafer assemblies of Takeuchi are accommodated in a containers (wafer ring cassettes) prior to being taken out of the container for processing such as dicing (col. 4, line 44 – col. 5, line 29 of the Takeuchi reference), and the container of Kawada is for accommodating wafer assemblies; it would, therefore, have been obvious to a skilled person in the art to have placed the Takeuchi's wafer assemblies into the Kawada's container in order to accommodate the wafer assemblies prior to being taken out of the container for processing in a specific processing station.
- Appellants also contend that the Kawada's slots do not function to prevent rotational movement of the wafers stored therein. In response, the engagement of the straight edges of the Takeuchi's wafer ring (11), which are considered to be the alignment

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artifacts on the wafer assemblies, with the slots (16) of the Kawada's container, which are considered to be the orientation artifacts on the container, would prevent the rotational movement of the wafer assembly relative to the container.

- Appellants also contend that Takeuchi fails to remedy the deficiencies of Kawada by showing that the wafer assemblies of Takeuchi must be aligned when taken out of the container because orientation of the wafer assemblies is unknown within the container. In response, the board is respectfully directed to the reference of Takeuchi at col. 5, lines 13- 25, which states:

“The ring cassette, from which the rings frames 11 have been taken out at the second loader section 15b, is transported to the second unloader section 20b where it waits for the rings frames 11 to which processed wafers 1 are fixed. Thus, the rings frames 11 to which the processed wafers 1 are fixed are again accommodated in the ring frame cassette 11. The ring frame cassette accommodating a predetermined number of ring frames 11 is then delivered to an output station 25 and then forwarded through a transportation system 23 in the factory to the next processing device, e.g., a die bonding device.”

It is clear that the orientation of the wafer assemblies are known prior to being placed into the container (wafer ring cassette) before the container is conveyed to a further processing station.

- Appellants further contend that the Kawada container does not conform to the outer dimension of the Takeuchi's wafer frame, thus the alignment artifact of the wafer frame does not mate with the orientation artifact of the container as recited in claim 19. In response, the board is respectfully directed to the container (15) shown in FIG. 6 of the Kawada reference and the wafer assembly shown in FIG. 2A of the Takeuchi reference. It is clear that the Kawada's container fully conforms to the outer dimension of the Takeuchi's wafer frame (11). When the Takeuchi's wafer assembly is placed into the Kawada's container, the edges of the Takeuchi's wafer frame (11)

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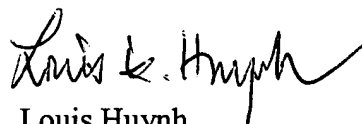
mate with the slots (16) of the Kawada's container; thus the combination meets the claimed limitation.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.


Respectfully submitted,



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